EARNING PER SHARE (EPS), PRICE BOOK VALUE (PBV), RETURN ON ASSET (ROA), RETURN ON EQUITY (ROE), AND INDEKS HARGA SAHAM GABUNGAN (IHSG) EFFECT ON STOCK RETURN

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ABSTRACT

Stock market exchange growth has become one of the important factors for Indonesian economic growth right now. This phenomenon happens because the increase of Indonesian interest in joining the stock market, increasing quantity of company that listed in Indonesia Stock Exchange, and government support through investment regulation. Stock return are very sensitive to changes in business environment and economy of a country. That is why investors need to be careful to invest in the stock market and needs many accurate information as consideration in making choices. In this study, the author used 4 ratios such as Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), and Return On Investment (ROE) effect on 20 companies stock return that listed for 10 years in LQ45 index from 2014-2018 with Market Return as control variable. Return on Equity (ROE) were excluded from the model because it has multicollinearity problem with Return On Asset (ROA). This study found that Earning Yield (EY), Price Book Value (PBV), Return on Asset (ROA), and Market Return has affecting stock return altogether. Partially all the variables have positive significant effect on stock return, only Return on Asset (ROA) that has negative insignificant effect on Stock Return.

Key words: Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), Stock Return.

INTRODUCTION

1.1 Background of The Study

Stock market exchange growth has become one of the important factors for Indonesian economic growth right now. This phenomenon happens because the increase of Indonesian interest in joining the stock market, increasing quantity of company that listed in Indonesia Stock Exchange, and government support through investment regulation (Utami & Darmawan, 2017). For investor, stock investment has become one of the preferred investments because stock itself promise its participant to gain high return (Pratama, Azizah & Nurlaily, 2018). According to Fiki Ariyanti (2019) in his article states that stock investment is one of the investments that has "High Risk, High Return" slogan. It means that this kind of investment has a high risk of losing and gaining for investment.

In Indonesia, the main indicator for Indonesian stock market movement is *Indeks Harga Saham Gabungan* (IHSG) or can be called as Indonesian Composite Index (ICI), Indonesian Exchange (IDX) Composite, or Jakarta Stock Exchange (JKSE). According to Jogiyanto (2013 :147) states that IHSG is an index of stock prices that arranged and calculated with trend movement result, where the index number can be used to compare the event that can be price changes from time to time.

Stock return are very sensitive to changes in business environment and economy of a country. That is why investors need to be careful to invest in the stock market and needs many accurate information as consideration in making choices (Pratama, Azizah & Nurlaily, 2018). This kind event created uncertainty for investors to predict future outcomes. Investors can't predict when the uptrend and downtrend come and end, how much will it cost, or what companies will stand against bad market movement. Anytime investor put their money at risk to gain profit, there is an inherent level of uncertainty (Beers, 2019).

When approaching stock analysis, there are two common methodologies to analyze stock return which are technical and fundamental analysis. According to Halim (2005:14) states that technical analysis is based on stock price changes data on the past as an attempt to estimate future stock prices. Adam Hayes (2018) states that technical analysis based on three main assumptions, the fundamental already explained in the market price, prices moves in trend, and price movement tend to repeat by itself. While fundamental analysis based on information which is published by the stock company, government regulation, economic movement or even an event that made an impact on stock market. This analysis can be interpreted by using company financial statement that published quarterly or yearly to analyze.

According to Baridwan (2004) states that financial statement is a summary of financial transaction of a company. According to Chris B Murphy (2019) in his article states that financial statements are written reports that summarize business activities and the financial performance of the company. Investor and financial analyst can rely on this financial statement to predict future outcomes of the company. That information can be used for investors to make decision whether to buy or sell stock in the stock market. One indicator to look at the prospects of companies in the future is to see the company's profitability growth. According to Kenton (2018) states that profitability growth Profitability growth can be obtained from financial ratios, these ratios are very important to analyze so that investors can understand how far the investment in company stocks return meets the expected returns of investors (Pratama, Azizah & Nurlaily, 2018).

In this study, the author used 4 ratios such as Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), and Return On Investment (ROE) as ratios to see the effect on 20 companies stock return that listed in LQ45 index for 10 years with *Indeks Harga Saham Gabungan* (IHSG) as the Market Return.

1.2 Research Problem

Based on discussions given above, stock return movement affected by many factors that sometimes unpredictable or even missed for investor to gain, that is why future stock return movement become hard to tell. There is also a high risk of investing in stock market that many investors need to consider. Because of it, stock return become uncertainty for investors.

1.3 Research Objective

Objective related to this research are shown as follows:
1. To understand the effect of Earning Yield (EY) on stock return
2. To understand the effect of Price Book Value (PBV) on stock return
3. To understand the effect of Return On Asset (ROA) on stock return
4. To understand the effect of Return On Equity (ROE) on stock return
5. To understand the effect of Market Return on stock return
6. To understand the effect of Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), and Market Return on stock return altogether

1.4 Research Question

Questions related to this research are shown as follows:
1. How does Earning Yield (EY) affect stock return?
2. How does Price Book Value (PBV) affect stock return?
3. How does Return On Asset (ROA) affect stock return?
4. How does Return On Equity (ROE) affect stock return?
5. How does Market Return affect stock return?
6. How does Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), and Market Return affect stock return altogether?

1.5 Scope and Limitation

Scope and limitations related to this research are shown as follows:
1. The stock return in this study are only 20 companies that listed in LQ45 index for over 10 years from 2014 until 2018.
2. The ratios are collected from quarter report for every 3 months from year 2014 until 2018.
3. The stock returns are collected in the last 5 days 1 month after the quarter report published
4. The financial ratios that were used in this study are only Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), and Return On Equity (ROE).

1.6 Organization of The Thesis

In writing this study, the author developed a structure through several chapters with unique characteristics in each chapter. Therefore, the author organized it into five chapters with well-established sections into each chapter as follows:
1. Chapter One: This chapter describes the background of the study, problem statement, research questions, research objectives, scope and limitations of the study, and organization of the thesis.
2. Chapter Two: This chapter describes the literature and theories related to the study of this research
3. Chapter Three: This chapter describes the research material and method. It explains the step-by-step process of the research and hypotheses from each independent variable.
4. Chapter Four: This chapter describes the finding and discussion that the author receives after conducting the research.
5. Chapter Five: This chapter describes the conclusion and recommendation for the research.

LITERATURE REVIEW

2.1 Financial Ratios

According to Fahmi (2014:49) states that Financial Ratios is a study to analyze the comparison between data that found in financial statement with formula that can represent company financial condition. In this study, the author used Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), and Return On Asset (ROE) to conduct the research. The explanation shown as follows:

2.1.1 Earning Yield (EY)
According to Carry Mitchell (2019) states that Earning Yield shows the percentage on how much company earned per share. Earnings Yield can be found by dividing Earning Per Share (EPS) with the current market price per share. According to Ken Faulkenberry (2019) states that Earning Yield shows the percentage of the investment value and its feedback of the price/earnings (P/E). The formula can be shown as follows:

Figure 1: Earning Yield Formula

$$EY = \frac{Earning\ Per\ Share}{Current\ Market\ Price\ Per\ Share}$$

2.1.2 Price Book Value (PBV)

Price Book Value (PBV) is a calculation or comparison between market value with the book value of a company's stock. With this ratio, investors can understand how many times market value of a stock valued from its book value (Mulia, 2011). According to Tryfino (2009:11) states that PBV ratio can give a picture of stock movement potential. PBV can be found by dividing Stock Price Per Share with Book Value Per Share, the formula shown as follows:

Figure 2: Price Book Value Formula

$$PBV = \frac{Stock\ Price\ Per\ Share}{Book\ Value\ Per\ Share}$$

2.1.3 Return On Asset (ROA)

According to Mishkin (2008:306) states that Return On Asset (ROA) used as a tool to analyze or measure the efficiency of business and profitability of a company. For Hery (2015:228), ROA is a ratio to show how big the asset contribution in creating net income. Gitman (2000) states that ROA measures company effectiveness in generating profit with its assets. It means that if the ROA is high, the company effectively generating profit with its assets. ROA can be found by dividing net income with total assets, the formula shown as follows:

Figure 3: Return On Asset Formula

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

Where :
Total assets = Shareholders Equity + Liabilities

2.1.4 Return On Equity (ROE)

According to Gitman (2000) states that Return On Equity (ROE) measures the return on the shareholders both preferred and common stockholders in the company. ROE directly affected company intrinsic value and because of it, ROE has become one of the ratio that investors used to analyze company's stock price. ROA and ROE have similarity in common where if the company has no debt, it will make the ROA and ROE has the same result. But if the company has financial leverage, ROE will rise above ROA. Debt will generate more cash for the company so it increases company's asset (Fuhrmann, 2010). ROE formula shown as follows:

Figure 4: Return On Equity Formula

$$ROE = \frac{Net\ Income}{Equity}$$

Where :
Equity = Asset – Liabilities

2.2 Stock Return

Stock Return is the difference between the current stock price and the stock price before the current stock price and divided by the stock price before the current stock price. The stock return used to determine whether the current stock price has any gain or loss in comparison with the earlier price. According to Ross et al (2003:238) states that the formula of return (In this term is Stock Return) is shown as follows:

Figure 5: Stock Return Formula

$$Stock\ Return = \frac{CP - CPt\text{-}1}{CPt\text{-}1}$$

Where :
CP = Current Stock Price
CPt-1 = Stock Price Before the Current Stock Price

2.3 Market Return

Indeks Harga Saham Gabungan (IHSG) was the main stock index in Indonesia because its shows the majority of stock price trend movement in the market. IHSG is calculated using averaging method based on the sum of stocks price listed in the index and divided by the total number stock listed in index (*Bursa Efek indonesia*, 2010). The formula shown as follows:

Figure 6: Index Formula

$$Index = \frac{Sum\ of\ Stock\ Price\ Listed\ in\ Index}{Number\ of\ Stock\ Price\ Listed\ in\ Index}$$

In this study, the author used Market Return as control variable of this research to fit into the model. Similar to the Stock Return, Market Return (In this study the author used IHSG as the market return) is the difference between the current IHSG price and the IHSG price before the current IHSG price and divided by the IHSG price before the current IHSG price. The Market Return used to determine whether the current IHSG price has any gain or loss in comparison with the earlier price. According to Ross et al (2003:238) states that the formula of return calculation (In this term is Market Return) is shown as follows:

Figure 7: Market Return Formula

$$Market\ Return = \frac{CIHSG - CIHSGt\text{-}1}{CIHSGt\text{-}1}$$

Where   :
CIHSG   =   Current IHSG Price
CIHSGt-1   =   IHSG Price Before the Current IHSG Price

2.4 Efficient Market Hypothesis

Eugene Fama (1970) the one who pioneers this theory states that future stock price is hard to predict and the new information will be reflected quickly into the current stock price. This theory assumes that the market cannot be beaten because all the important information already told into current stock prices. Therefore, no amount of analysis can give investors an idea about the market movement. Stocks traded in their fairest value, it means that they can't be purchased undervalued or sold overvalued. This theory states that investors only gain higher return through speculative investment with high risk (Maverick, 2019). There are three types of Efficient Market Hypothesis and can be breakdown as follows:

1. Weak Form

The Weak Form theory states that the stock prices reflect all the data from the past prices and there is no technical analysis that can be used for investors to making their trading decision. Fundamental analysis can be used for investor to gain profit above market average but only for short term and there is no price pattern for the long run.

2. Semi-strong Form

Semi-strong Form theory states that all the information already reflect on the current stock price, that is why fundamental and technical analysis can't be used at all to gain higher return in the market. Investor only belief that information for future price stocks movement are not released yet.

3. Strong Form

Strong Form theory states that all the information that has been released and information that has not been released are already reflected in the current stock price. There is no other information that can be used for investors to gain knowledge about the market and investors can't receive market returns above market return average.

2.5 Mutual Feedback with the Actual Market

According to Governor of the Bank of Japan Haruhiko Kuroda (2017) states that traditional financial theory is generally accepted by the academia. But unfortunately there are quite a few phenomenon in the actual market that cannot be explained by the traditional financial theory with the satisfactory explanation. These difficulties are explained into three factors, there are:

1. Difficulties in Utilization of the Market Data

In the technology era where information can be received widely through natural language processing, improvement in performance of the computer, and a trend towards analyzing type of information makes the decision and the market analyses has become widespread. This problem creates many outcomes for what will happen in the future for investors in choosing the right investment for them.

2. Anomalies in The Market

This anomalies phenomena in the market are sometimes happen in the financial market that cannot be explained rationally by investors. These anomalies can happen because of the calendar effect which in specific days or months can affect the price changes, unpredicted news that can create unexpected market movement, or even based investor psychology such as their past experience and expectations that tend to move the market unpredictable for other investors.

3. Changes in The Market Structure

Market structure change mean there are changes in how usually market function or operate. For example, the old tradition way of investors bought their stocks through brokers with phone calling are changing into online trading that creates faster market response. These changes included politics, regulation, and taxation changes in the financial market that created unexpected movement on the market.

2.6 Hypothesis

Based on the variables theory and the previous study findings in this study, the author interpreted 6 hypotheses from 5 independent variables, all the hypotheses are shown as follows:

1) Earning Yield (EY) Hypothesis On Stock Return

Based on Carry Mitchell (2019) that states EY shows the percentage on how much company earned per share, combined with previous study from Dwita Rahmatika (2014) findings that states EY has a positive significant effect on stock return, the author concluded that the EY hypothesis interpreted as follows:

H1: Earning Yield (EY) has a positive significant effect on stock return

2) Price Book Value (PBV) Hypothesis On Stock Return

Based on Nurdhiana (2011) that states investors can understand how many times market value of a stock valued from its book value, Tryfino (2009 : 11) that states that PBV ratio can give a picture of stock movement potential, combined with previous study from Dwi Martani, Mulyono, and Rahfiani Khairurizka (2007), Rendra Akbar (2015), Brina Putri Hartaroe, Ronny Malavia Mardani, and M. Khoirul ABS (2017), Agung Sugiarto (2010), Erifa Aldiena and Muhammad Hanif al Hakim (2019), and Inka Natasya Hagaina Bukit (2012) findings states that PBV has a positive significant effect on stock return, the author concluded that the PBV hypothesis interpreted as follows :

H2: Price Book Value (PBV) has a positive significant effect on stock return

3) Return On Asset (ROA) Hypothesis On Stock Return

Based on Mishkin (2008:306) that states that Return On Asset (ROA) used as a tool to analyze or measure the efficiency of business and profitability of a company, Hery (2015:228) that states ROA is a ratio to show how big the asset contribution in creating net income, Gitman (2000) that states that ROA measures company effectiveness in generating profit with its assets, combined with previous study from Maryyam Anwaar (2015), and Wong Pik Har and Muhammad Afif. Abdul Ghafar (2015) findings states that ROA has a positive significant effect on stock return, the author concluded that the ROA hypothesis interpreted as follows:

H3: Return On Asset (ROA) has a positive significant effect on stock return

4) Return On Equity (ROE) Hypothesis On Stock Return

Based on Gitman (2000) that states that Return On Equity (ROE) measures the return on the shareholders both preferred and common stockholders in the company, combined with previous study from Febriyansyah Lukmana Putra, Siti Nurlaela, and Yuli Chomsatu Samrotun (2018), and Wong Pik Har and Muhammad Afif. Abdul Ghafar (2015) findings states that ROE has a positive significant effect on stock return, the author concluded that the ROE hypothesis interpreted as follows:

H4: Return On Equity (ROE) has a positive significant effect on stock return

5) Market Return Hypothesis On Stock Return

Based on Jogiyanto (2013:147) that states IHSG movement reflecting the majority of Indonesian stock movement, combined with previous study from Satria Prawira Dirga, Hermanto Siregar, and Bonar M Sinaga (2016), and Fitri Herawati, Ronny M Mardani, and M. Khoirul ABS (2017) findings that states IHSG has a positive significant effect on stock return, the author concluded that the Market Return hypothesis interpreted as follows:

H5: Market Return has a positive significant effectt on stock return

6) Affecting Stock Return Altogether Testing

Based on the 5 hypotheses above, combined with the previous study that has similar variables with this study from Fransiska Sepriana and Saryadi (2017), Yuniar (2018), Maulida Ayu Windiarsih (2014), and Rani Ramdhani (2011) findings states that all of their variables affecting stock return altogether, the author concluded that the hypothesis interpreted as follows:

H6: Earning Yield (EY), Prive Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), and Market Return has affecting stock return altogether

2.8 Hypothesis Framework

Figure 8: Hypotheses Framework (Author, 2019)
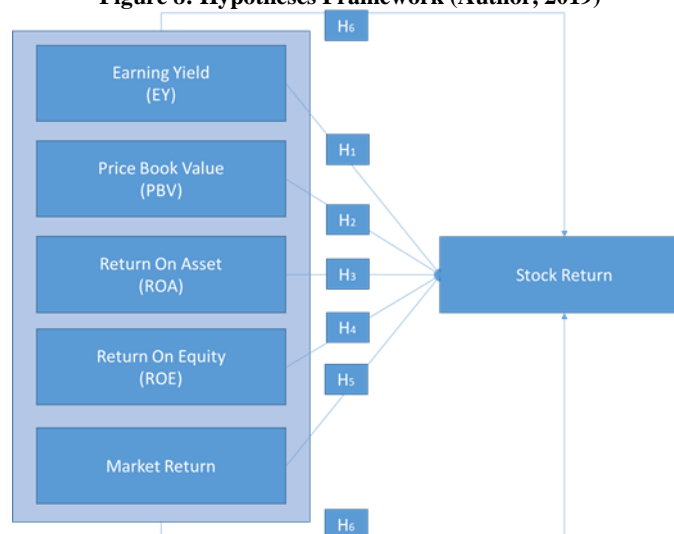
METHODOLOGY

3.1 Research Variable

Research variable is defined as variable that is created by the researcher to observe for receiving the information about the research and concluded with the conclusion. Research variable is defined as variable that is created by the researcher to observe for receiving the information about the research and concluded with the conclusion (Hatch & Farhady, 1981).
In this study, the author used quantitative research method. Quantitative research itself can be defined as using data in a numerical form. This type of data can be used to construct graphs and tables from raw data (Mcleod, 2017). Author used quantitative research methods to understand the effect of Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), and Market Return on Stock Return.

3.2 Measurement of Variables

According to Helemenstine (2017), there are two kinds of variables, dependent and independent variable, both variables explained as follows:

3.2.1 Dependent Variable
A dependent variable is the variable that was tested and measured. Dependent variable cannot stand by itself and need Independent variable to be calculated. In this study, the author used Stock Return as the dependent variable.

3.2.2 Independent Variable
An independent variable is the variable that is controlled and can stand by itself to test the effect on the dependent variable. In this study, the author used Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), and Market Return.

3.3 Sampling Design
Sampling design consists of population and sample, the explanation are shown as follows:

3.3.1 Population
Population refers to a large group of individuals or objects for scientific research purpose. Population has the same characteristics with the researchers aimed (Maholta, 2010). The population in this research are the stocks return that listed in LQ45 for over 10 years from 2014 - 2018.

3.3.2 Sample
Sample means a group of people, objects, or items that were taken from the population of the study. This study used purposive sampling so the data are chosen based on the research purpose. According to Crossman (2019), purposive sampling is a non-probability sample that chosen from specific characteristics of the population and the objective of the study. This study used non-probability method that means that the samples are selected based on the researcher needs rather than random selection (Bhat, 2017). This study specified the samples in only 20 stock return that listed in LQ45 index for more than 10 years.

3.4 Observation Period
The observation period of this study samples are taken from 20 Stock Return in LQ 45 index, the numerical data received from quarterly annual report (every 3 months) from January 2014 until December 2018.

3.5 Data and Data Source
This study is using quantitative method means that the data are numerical. Because of the data are obtained quarterly (every 3 months) from 2014 until 2018, the data are classified as time series data. In terms of how the author obtain the data, the data are obtained from the secondary data. Secondary data means that the data are already published by the newspaper, books, internet, etc. The source of the data used in this research came from *Yahoo Finance!* And Annual Report.

3.6 Data Analysis Technique
The data analysis technique begins with gathering all the data to each desire variable. All ratio gathered based on the quarterly report published. For the closing price of stock and market return, the data are gathered from the last 5 days 1 month after the quarterly report published. This research used descriptive analysis to ensure the accuracy of data to test the hypothesis. In practice, IBM SPSS, EViews, and Microsoft Excel are used to do the statistical analysis for this research.

3.7 Descriptive Statistic
Descriptive statistics are numbers that condense the information with the motivation to describe what happened in the data (Thompson, 2009). The mean and standard deviation are included (Donges, 2018). In order to create conclusions, descriptive statistics are used to analyze the data. The explanation on both mean and standard deviation are shown as follows:

3.7.1 Mean
Mean is the average of all data values (Mann, 2007). It is counted by adding all the values and separating them with the value amount. The average equation is:

Figure 9: Mean Formula

$$\bar{x} = (\Sigma x_i) / n$$

Where   :
x̄ j   = mean
x_i = all of the x-values
n   = number of total values

3.7.2 Standard Deviation
Standard Deviation is a measure to quantify or simply determine how dispersed the set of information is (Mann, 2007). Standard deviation formula is:

Figure 10: Standard Deviation

$$S = \frac{\sum_{t=1}^{n}(xi - x)}{n - 1}$$

Where   :
s   = Standard Deviation
x̄   = Mean Return
$\sum_{t=1}^{n} xi$ = The sum of the values
n   = Number of values

3.8 Classical Assumption Testing
According to Ghozali (2011), to make sure the data fit the model with the classical assumption, the study used several tests which are:

3.8.1 Multicollinearity Test
Multicollinearity test is used to determine whether the independent variables in a regression model have a perfect or ideal linear connection. This could be achieved by looking at the Variance Inflation Factor (VIF) (Priyatno, 2010). In general, the Variance Inflation Factor must not exceed 10 in order to determine that there is no multicollinearity issue in the regression model (Hair et al., 2010). The assumptions are as follows:

H0: Zero Multicollinearity
H1: Multicollinearity Exist

To see which variable that has multicollinearity with another variable, multicollinearity can be tested using bivariate correlation test (Martin, 2018).

3.8.2 Normality Test
To make sure the data is normally distributed, the study conducted the normality test through Jarque-Bera normality test. According to Ghozali (2011), the test assumption is shown as follows:

H0: p-value > 0.05 The data is normally distributed
H1: p-value < 0.05 The data is not normally distributed

3.8.3 Autocorrelation Test
Autocorrelation is an information feature showing the degree of similarity over consecutive time periods between the values of the same variables. It is a correlation between time series residuals and cross-series observational data (Gujarati, 2003). It states that if the mistakes are not correlated and if this hypothesis is not fulfilled, the mistakes are auto-related or dependent on each other (Huitema and Laraway, 2006). It is possible to test autocorrelation using the Durbin-Watson test. The Durbin-Watson test result is compared with the Savin and White Table's lower critical value *(dL) and* upper critical value (dU) to test whether Autocorrelation does exist in the model. The assumptions are as follows:

H0: Zero Autocorrelation
H1: Autocorrelation Exist

3.8.4 Heteroscedasticity Test
According to Ghozali (2011), heteroscedasticity test is a test to know whether there is a difference of variance between the residual in the regression model. This study using Scatter Plot to see whether the model has heteroscedasticity or not. If the Scatter Plot shown any pattern, reject *H0* because it has heteroscedasticity in it. The assumptions are as follows:

H0: Zero Multicollinearity
H1: Multicollinearity Exist

3.9 Regression with Panel Data

3.9.1 Regression
Regression is a statistical measurement to find the strength of relationship between one dependent variable and a series of independent variables. According to Mann (1995), regression model is a mathematical statistic that describes the connection between two or more factors. This study used multiple linear regression to conduct the research. Linear regression tries to model

the connection between two variables. One variable is regarded as an explanatory variable and the other as a dependent variable. The simplest regression equation with one dependent and one independent variable is defined by the following equation:

Figure 11: Regression Formula

$$Y = \alpha + \beta X$$

Where :
Y   = estimated dependent variable score
α   = constant
β   = Coefficient of variables
x   = score on the independent variable

3.9.2 Panel Data

Panel data is data that has been observed from time to time on a large number of cross-sectional units like individuals, households, firms, or governments. It can also be referred as multidimensional data that includes some measurements over some period of time (Moffatt, 2019). The panel data can be called as balanced panel if each cross-sectional unit has the same number of time observations. If the data has different number is called unbalanced panel (Gujarati, 2003). In this study, the cross sectional units are 20 stock companies that listed in LQ45 index. The data are taken from year 2014 until 2018. That is why it's called balance panel.

3.10 Model Structure

There are three models that the author needs to choose to do the regression with the panel data. All the three data has a different effect on the analysis output, that is why the author need to choose which model is suitable or this study. These three models are Common Effect Model, Fixed Effect Model, and Random Effect Model.

3.10.1 Common Effect Model

Common Effect Model is the simplest technique in estimating the panel data regression, this model combines time series and cross data section and ended by doing estimation (pooling). Data are combined without paying attention to the differences between time and individuals. In each observation there is a regression so all the data are single dimension. This method assumes that the value and the coefficient slope that intercept each variable are the same. This method is easy, but the model can distort the actual picture from the relationship between the dependent and independent variables between cross section units (Sukendar & Zainal, 2007). The equation from of Common Effect Model is shown as follows:

Figure 12: Common Effect Model Formula

$$yit = a + x'it\,\beta + eit$$
$$i = 1, ..., n$$
$$t = 1, ..., T$$

Where :
yit   : The Dependent Variable of the cross-sectional units over the time periods observed
x'it   : The Independent and Control Variables of the cross-sectional units over the time periods observed
a   : The regression model intercept
β   : The coefficient
eit   : The component error of the observed cross-sectional units and time period
n   : The number of observed cross-sectional units
T   : The number of observed time periods

3.10.2 Fixed Effect Model

According to Sukendar and Zainal (2007), in the fixed effects model approach, it is assumed that the intercept and slope (B) of the regression equation (model) are considered constant between cross section units and time series units. One way to pay attention to cross-section units or time-series units is to include dummy variables to allow differences in the value of different parameters, both cross-section cross-unit units and between time series units. The most common approach is to allow intercepts to vary between cross-section units but still assume that the slope coefficient is constant between cross section units. This approach is known as the fixed effect model (FEM). The formula can be shown as follows:

Figure 13: Fixed Effect Model Formula

$$yit = x'it\,\beta + ai + eit$$
$$i = 1, ..., n$$
$$t = 1, ..., T$$

Where   :
Yit   : The Dependent Variable of the cross-sectional units over the time periods observed
x'it   : The Independent and Control Variables of the cross-sectional units over the time periods observed
ai   : The regression model intercept of the observed cross-sectional units and/or the observed time periods.
β   : The coefficient
eit   : The component error of the observed cross-sectional units and time period
n   : The number of observed cross-sectional units
T   : The number of observed time periods

3.10.3 Random Effect Model

In estimating panel data through the FEM approach, dummy variables indicate the uncertainty of the model used. To overcome this problem, a residual variable, known as the random effect model (REM) approach is used. The basic idea of REM is to assume errors are random. REM is estimated by the Generalized Least Square (GLS) method. The formula can be shown as follows:

Figure 14: Random Effect Model

$$yit = x'it\,\beta + a + wit(3.7)$$
$$wit = \varepsilon it + eit$$
$$i = 1, \dots, n$$
$$t = 1, \dots, T$$

Where   :
yit   : The Dependent Variable of the cross-sectional units over the time periods observed
x'it   : The Independent and Control Variables of the cross-sectional units over the time periods observed
a   : The regression model intercept
β   : The coefficient
wit   : The composite error which is the combination of two error components, εit and eit
εit   : The individual-specific error component
eit   : The component error of the observed research sample and time period
n   : The number of observed cross-sectional units
T   : The number of observed time periods

3.11 Coefficient Correlation

Coefficient Correlation is to measure how strong the relation between one variable to another. The result is between 1 to -1, 1 indicates positive strong relation and -1 indicates strong negative relation. In this measurement, 0 indicates no relations at all (Sedgwick, 2012). Later on the result of Coefficient Correlation will be compared with the Pearson Correlation Coefficient Table to see whether the data statistically has significant relation or not.

3.12 Model Selection

To test on which on effect model that is the most suitable for this study, there are 2 tests which are Likelihood Ratio Test and Hausman Test.

3.12.1 Likelihood-Ratio Test

Likelihood-Ratio Test or can be called as Likelihood-Ratio Chi-squared test is a test to find the significance of fixed effects. This test can compared the goodness between the common effect model with the fixed effect model and found which one is the most suitable for the study. The hypothesis can be shown as follows:

H0 : Common Effect Model
H1 : Fixed Effect Model
If the P-value for Chi-Square statistic is less than significance 0.05, the null hypothesis is rejected.

3.12.2 Hausman Test

According to Greene (2003) states that Hausman Test or can be called as Specification Test is a test for orthogonality of the random effects and the regressors so it can compared the goodness between the fixed effect model and random effect model and found which one is the most suitable for the study. The hypothesis can be shown as follows:

H0 : Fixed Effect Model
H1 : Random Effect Model
If the P-value for Chi-Square statistic is less than significance 0.05, the null hypothesis is rejected.

3.13 Hypothesis Testing

This test estimated whether each of hypothesis from this study is accepted or not.

3.13.1 T-Statistical Testing

According to Ghozali (2013) states that to comprehend the distinction between two kinds of samples, T-Test is used. It enables researchers to compare the two data sets average values and determine whether they came from the same population. T-Test can also call as partial test, it means that T-Test testing each independent variable with its dependent variable partially and determine whether it has any strong relation or not. A high T-Count shows different group relation while a small t-value shows similar groups relation (2019, Kenton). If the p-value is < significance level (i.e., the significance level), the null hypotheses are rejected. And if the Tcount is < Ttable, the null hypothesis is also rejected. T-Test hypothesis are as follows:

H0 : β1,t = 0
H1 : βi,t > 0 or βi,t < 0

3.13.2 F-Statistical Testing

According to Ghozali (2013), the F-Test shows whether all independent variables have a mutual impact on dependent variables. It is used to determine whether or not all the independent variables were taken from a standard population with the same variation or whether or not all the independent variables variance estimates are of a homogeneous nature. If the P-Value result is less than the significance level (ɑ) of 0.05 than the null hypothesis is accepted. The F-Test can be shown as follows:

H0 : All parameters = 0
H1 : At least one parameter ≠ 0

3.13.3 Coefficient of Determination

Coefficient of determination denoted as R-squared is a measure of the quantity of variation that the regression model accounts for the amount of variability. It is the percentage of variance that is predictable from the independent variables in the dependent variable. The greater the determination coefficient is favorable because it improves the capacity of independent variables to explain the dependent variable.

R-squared improves as the model's amount of variables rises by the investigator. This shows a drawback to a possible use of R-squared, where factors may continue to be added to boost the R-squared value. This leads to the alternative strategy to look at the adjusted R-squared, where the statistics are penalized as additional factors are included in the model.

FINDING, ANALYSIS, AND DISCUSSION

4.1 Research Object Description

The research sample of this study consists of 20 companies that listed in LQ45 for more than 10 years from 2014 until 2018. The explanation in the table below includes the listing date and the business sector:

Table 1: List with The Description (Author, 2019)

No	Stock Code	Name	Listing Date	Business Sector
1	ADRO	PT. Adaro Energy Tbk	16 Juli 2008	Mining
2	ASII	PT. Astra International Tbk	4 April 1990	Various Industry
3	BBCA	PT. Bank Central Asia Tbk	31 Mei 2000	Finance
4	BBNI	PT. Bank Negara Indonesia (Persero) Tbk	25 November 1996	Finance
5	BBRI	PT. Bank Rakyat Indonesia (Persero) Tbk	10 November 2003	Finance
6	BMRI	PT. Bank Mandiri (Persero) Tbk	14 Juli 2003	Finance
7	GGRM	PT. Gudang Garam Tbk	27 Agustus 1990	Consumer Goods
8	INDF	PT. Indofood Sukses Makmur Tbk	14 Juli 1994	Consumer Goods
9	INTP	PT. Indocement Tunggal Prakarsa Tbk	5 Desember 1989	Basic Industry and Chemicals
10	JSMR	PT. Jasa Marga (Persero) Tbk	12 November 2007	Infrastructure, Utility and Transportation
11	KLBF	PT. Kalbe Farma Tbk	30 Juli 1991	Consumer Goods
12	PGAS	PT. Perusahaan Gas Negara (Persero) Tbk	15 Desember 2003	Infrastructure, Utility and Transportation

13	PTBA	PT. Bukit Asam Tbk	23 Desember 2002	Mining
14	TLKM	PT. Telekomunikasi Indonesia (Persero) Tbk	14 November 1995	Infrastructure, Utility and Transportation
15	UNTR	PT. United Tractors Tbk	19 September 1989	Trading Service and Investation
16	UNVR	PT. Unilever Indonesia Tbk	11 Januari 1982	Consumer Goods
17	INCO	PT. Vale Indonesia Tbk	16 Mei 1990	Mining
18	SMGR	PT. Semen Indonesia (Persero) Tbk	8 Juli 1991	Basic Industry and Chemicals
19	AALI	PT. Astra Agro Lestari Tbk	9 Desember 1997	Farming
20	ANTM	PT. Aneka Tambang Tbk	27 November 1997	Mining

4.2 Data Analysis

4.2.1 Descriptive Statistic

Table 2: Descriptive Statistic Table (IBM SPSS, 2019)

	EY	PBV	ROA	ROE	Market Return
Observation	373	373	373	373	373
Mean	0.323	9.025	0.062	0.157	0.019
Std. Deviation	0.323	17.938	0.075	0.221	0.058
Minimum	-0.191	0.34	-0.475	-0.078	-0.091
Maximum	0.195	82.44	0.466	1.358	0.119

Table shows the descriptive statistics analysis result of the sample data. The total sample of each variable are 373 samples during the period in 2014 until 2018. Price Book Value (PBV) has the highest gap between its Minimum and Maximum values so it makes sense why it got the highest standard deviation value which means PBV has big range of variations in the samples. Other variables didn't show any high standard deviation values so that is why its gap between the minimum and maximum values are in the smaller range.

4.3 Classical Assumption Testing

The Classical Assumption Testing determine whether the research is fit with the study model. These tests include the multicollinearity test, normality test, autocorrelation test, and heteroscedasticity test.

4.3.1 Multicollinearity Test

This test determines whether any whether there is a multicollinearity between independent variables in the regression model. In order to detect multicollinearity on each independent variable, Variance Inflation Factor (VIF) is used to test it. ROE VIF result was above 10, it means that ROE has multicollinearity problem. These findings in line with previous study from Sigit Dwi Wismaryanto (2013) and Fitri Herawati, Ronny M Mardani, and M. Khoirul ABS (2017) findings that states ROE has multicollinearity problem. Both studies also mention that ROE has multicollinearity problem with ROA. To find out on that relation, the author used Bivariate Correlation to test.

Table 3: Bivariate Correlation Test (IBM SPSS, 2019)

| Correlations			ROA	ROE
ROA	Pearson Correlation		1	.919**
	Sig. (2-tailed)			.000
	N		378	378
ROE	Pearson Correlation		.919**	1
	Sig. (2-tailed)		.000	
	N		378	378

From the table Pearson Correlation table above, it is shown that 91.9% ROE and ROA variables are similar, so the results are in line with the previous study. But because only ROE has multicollinearity problem, ROE was excluded from the model. Based on the results shown in the multicollinearity test table, all the variables didn't have any multicollinearity because all the VIF are under 10 and greater than 0.10, so *H0* is accepted without ROE variables. The table below show Multicollinearity Test result without ROE.

Table 4: Multicollinearity Test Table (IBM SPSS, 2019)

Coefficients[a]		Collinearity Statistics
Model		VIF
1	(Constant)	
	EY	1.183
	PBV	2.646
	ROA	2.476
	MARKET RETURN	1.002

4.3.2 Normality Test

Figure 15. Normality Test Table (EViews, 2019)
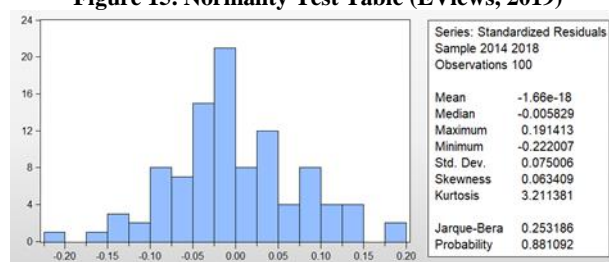
This study used Jarque-Bera to test the normality. Based on the results shown in the table, the Probability of Jarque-Bera is above the p-value (0.881>0.05). Based on the result, it can be concluded that the sample data is normal, so *H0* is accepted.

4.3.3 Autocorrelation Test

**Table 5: Autocorrelation Test Table (IBM SPSS, 2019)**

Model Summary[b]	
Model	Durbin-Watson
1	2.040

Durbin Watson analysis used to determine whether there is any autocorrelation in this study. This study has 378 number of observations which denoted as *n* and 5 regressions which denoted as *k*. Based on the Savin and White table, the dL is 1.623 and

the dU is 1.725. Because the Durbin-Watson stat is greater than dU and less than 4-dU, it means that this model has zero autocorrelation, so *H0* is accepted.

4.3.4 Heteroscedasticity Test

Figure 16: Heteroscedasticity Test result (IBM SPSS, 2019)
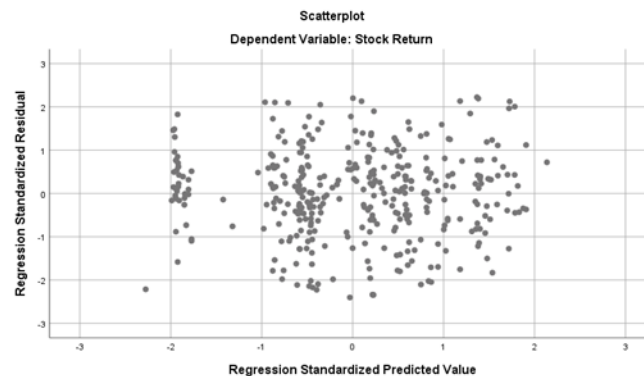
The study above showed the Scatter Plot of this study. It is shown that there is no clear plot pattern so the author can conclude that this model has zero Heteroscedasticity, so *H0* is accepted.

4.4 Correlation Coefficient Test

Table 6: Correlation Coefficient Test result (EViews, 2019)

	STOCK RETURN	EY	PBV	ROA	MARKET RETURN
STOCK RETURN	1	0.071554	0.181041	0.078242	0.684616
EY	0.071554	1	-0.5163	0.232564	-0.009677
PBV	0.181041	-0.5163	1	0.21016	0.080285
ROA	0.078242	0.232564	0.21016	1	0.113836
MARKET RETURN	0.684616	-0.00968	0.080285	0.113836	1

The correlation between the variables can be seen in the table above. Overall the correlation is below 0.5 which indicate moderate positive and negative relationship. There are also two correlations that's above 0.5 that shows strong relations such as between market return and stock return, and between PBV and EY.

The result of these findings need to be compared with Pearson Correlation Coefficient table to have a more precise result. The alpha (ɑ) is 0.05 and the degree of freedom (df) is 373. The Pearson Correlation value is 0.097. So if there is any result that's exceed 0.097 and -0.097, the null hypothesis will be rejected. So that is why the correlation between EY and Stock Return, EY and Market Return, PBV and Market Return, ROA and Stock Return failed to reject the null hypothesis.

4.5 Regression with Panel Data

4.5.1 Model Selection

4.5.1.1 Likelihood Ratio Test

Table 7: Likelihood Ratio Test (EViews, 2019)

Effect Test	Statistic	Prob
Cross-Section F	0.46186	0.9699
Cross-Section Chi-quare	10.927310	0.9263

Based on the Table 7, the probability of Chi-quare is 0.9263 and its above 0.05. It means that this study using Common Effect Model and the null hypothesis failed to be rejected. That is why Hausman Test is not necessary.

4.6 Hypothesis Testing
The Hypothesis Testing it to examine the independent variables partially and altogether effect on Stock Return, this hypothesis testing used T-Test to saw the effect partially and F-Test to saw the effect altogether.

4.6.1 Partial T Statistical Testing

Table 8: T-Statistical Testing Table (EViews, 2019)

Variable	Coefficients	Prob.
EY	0.998798	0.0040
PBV	0.029129	0.0025
ROA	-0.529964	0.1497
Market Return	1.319354	0.0000

This T-Test using 95% confidence level and 373 degree of freedom, the T-Table is at 1960. From this result, the explanation from each variable will be shown as follows:

- The Significance for EY is 0.0040. It is less than the significance level (α) of 0.05, it means that EY has a significant effect on stock return. Because EY has a positive coefficient, it means that if EY is increased, stock return is also increased. In conclusion, EY has positive significant effect on stock return.
- The Significance for PBV is 0.0025. It is less than the significance level (α) of 0.05, it means that PBV has a significant effect on stock return. Because PBV has a positive coefficient, it means that if PBV is increased, stock return is also increased. In conclusion, PBV has positive significant effect on stock return.
- The Significance for ROA is 0.1497. It is higher than the significance level (α) of 0.05, it means that ROA has an insignificant effect on stock return. Because ROA has a negative coefficient, it means that if ROA is increased, stock return tends to decreased. In conclusion, ROA has negative insignificant effect on stock return.
- The Significance for Market Return is 0.0000. It is less than the significance level (α) of 0.05, it means that Market Return has a significant effect on stock return. Because Market Return has a positive coefficient, it means that if Market Return is increased, stock return is also increased. In conclusion, Market Return has positive significant effect on stock return.

4.6.2 F Statistical Testing

Table 9: F-Statistical Testing Table (EViews, 2019)

F-Statistics	26.08565
Probability F-Statistics	0.000000

The result is shown in table that the value of Probability F-Statistics is less than the significance level (α) of 0.005. It means that EY, PBV, ROA, and Market Return affecting Stock Return altogether.

4.6.3 Coefficient of Determination

Table 10: Coefficient of Determination Test Table (EViews, 2019)

R Square	Adjusted R Square
0.523434	0.503368

The R-Square result if change into percentage is 52.3%. It means that 52.3% effect on Stock Return movement is explained from this model. The Adjusted R-Square is 50.3%, it means that 50.3% of Stock Return will not be affected by any changes in the model.

4.7 Result Discussion

Based on the hypothesis testing above using Partial T Statistical Testing, the author can provide explanation according each hypothesis as follows:

1. First Hypothesis: Earning Per Share (EY) has a positive significant effect on Stock Return

This study found that EY partially has a positive significant effect towards Stock Return, so it has the same result with the hypothesis. This result is consistent with Dwita Rahmatika (2014) that states EY has a positive significant effect towards Stock Return. In conclusion, *H1* is accepted.

2. Second Hypothesis: Price Book Value (PBV) has a positive significant effect on Stock Return

This study found that PBV partially has a positive significant effect towards Stock Return, so it has the same result with the hypothesis. This result is consistent with Dwi Martani, Mulyono, and Rahfiani Khairurizka (2007), Rendra Akbar (2015), Brina Putri Hartaroe, Ronny Malavia Mardani, and M. Khoirul ABS (2017), Agung Sugiarto (2010), Erifa Aldiena and Muhammad Hanif al Hakim (2019), and Inka Natasya Hagaina Bukit (2012) that states PBV has a positive significant effect towards Stock

Return. This result is inconsistent with Sebastianus Laurens (2018) that states PBV has a positive insignificant effect on stock return. In conclusion, *H2* is accepted.

3.	Third Hypothesis: Return On Asset (ROA) has a positive significant effect on stock return

This study found that ROA partially has a negative insignificant effect towards Stock Return, so it has different result with the hypothesis. This result is consistent with Firda Apriliani and Estuti Fitri Hartini (2016), Febriyansyah Lukmana Putra, Siti Nurlaela, and Yuli Chomsatu Samrotun (2017), Rani Ramdhani (2013) that states ROA has negative insignificant effect on Stock Return This result is inconsistent with Maryyam Anwaar (2015), and Wong Pik Har and Muhammad Afif. Abdul Ghafar (2015) that states ROA has a positive significant result on Stock Return. In conclusion, *H3* is rejected.

4.	Fourth Hypothesis: Return On Equity (ROE) has a positive significant effect on stock return

This study found that ROE has multicollinearity problem with ROA so ROE is excluded from the model. This result is consistent with Sigit Dwi Wismaryanto (2013), and Fitri Herawati, Ronny M Mardani, and M. Khoirul ABS (2017) that states ROE has multicollinearity problem with ROA, this 2 study also excluded ROE from the model. In conclusion, *H4* is excluded from the model.

5.	Fifth Hypothesis: Market Return has a positive significant effect on stock return.

This study found that Market Return partially has a positive significant effect on stock return, so it has the same result with the hypothesis. This result is consistent with Satria Prawira Dirga, Hermanto Siregar, and Bonar M Sinaga (2016) that used Farming Index and found that Farming Index Return has positive significant effect on stock return. This result is also consistent Putu Ayu Nirmala Kamiana Putri dan Ida Bagus Anom Purbawangsa (2017) that states IHSG has a positive significant effect on Stock Return. In conclusion, *H5* is accepted.

The second hypothesis testing is F Statistical Testing, the author can provide an explanation for the sixth hypothesis as follows:

6.	Sixth Hypothesis: Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), and Market Return has affecting stock return altogether.

This study found that EY, PBV, ROA, and Market Return affecting Stock Return altogether, so it has the same result with the hypothesis without ROE variable because it was excluded from the model. This result is also consistent with other studies that has similar variables from Fransiska Sepriana and Saryadi (2017), Yuniar (2018), Maulida Ayu Windiarsih (2014), Rani Ramdhani (2011). In conclusion, *H6* is accepted.

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

This study conclusion points out the 6 objectives are shown below with further explanation from this study findings:

1.	To understand the effect of Earning Yield (EY) on stock return: This study found that Earning Yield has positive significant effect on Stock Return
2.	To understand the effect of Price Book Value (PBV) on stock return: This study found that Price Book Value (PBV) has positive significant effect on Stock Return
3.	To understand the effect of Return On Asset (ROA) on stock return: This study found that Return On Asset (ROA) has negative insignificant effect on Stock Return
4.	To understand the effect of Return On Equity (ROE) on stock return: This study found that Return On Equity (ROE) has multicollinearity problem with Return On Asset (ROA) so its excluded from the model. That is why there is no answer for this objective.
5.	To understand the effect of Market Return on stock return: This study found that Market Return has positive significant effect on Stock Return
6.	To understand the effect of Earning Yield (EY), Price Book Value (PBV), Return On Asset (ROA), Return On Equity (ROE), and Market Return on stock return altogether : This study found that all variables without Return On Equity (ROE) affecting stock return altogether.

5.2 Research Limitation

As the main objective of this study is to find the effect of ratios and Market Return on Stock Return, it didn't explain further explanation such as:

1.	The study didn't provide any arguments in regards to the phenomena that affecting these findings and only mention about market efficient market hypothesis, mutual feedback with the actual market theory, and previous study findings.
2.	The study used only EY, PBV, ROA, and ROE ratios and Market Return which limit this study finding regards financial ratios effect on stock return.
3.	The study only limit on 20 stock return in LQ 45 index from 2014-2018 and didn't cover any explanation on other stock return or different times of years.

5.3 Recommendation

In hopes for further research on this study area, the author purposes some recommendations for future researchers and investors, which are:

5.3.1 For Future Researcher

1.	Provide further explanation on financial ratios and Market Return effect on stock return
2.	Using more financial ratios, more index, or even more variables such as inflation and exchange rate

5.3.2 For Investor

This study found that EY, PBV, ROA, and Market Return affecting Stock Return altogether so investors need to consider all these variables as important to invest in stock. Investors also need to consider other financial ratios, index, and other variables such as inflation and exchange rate because this study only cover 52.3% (Coefficient Determination result) effect on stock return.

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